COLLEGE STUDENTS AND HEALTH CARE SERVICES: EXPLORATION OF STUDENTS' EXPERIENCES AND SATISFACTION WITH MEDICAL PROVIDER COMMUNICATION

by

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The theory of emerging adulthood and ecological approach are used in the current study to investigate emerging adults' health related behaviors and communication with health care providers on college campus. College students developmentally transition to college life while increasing independence and exploration as they move out of their parents' homes and take on more responsibilities, including being responsible for their own health and health care needs often for the first time. The current study explores college students' experiences as patients at their university's student health center with emphasis on provider communication satisfaction, their health-related behavior, and developmental needs as emerging adults.

Ninety-eight students from East Carolina University (ECU) participated in the survey. While the majority of students reported high levels of satisfaction with provider communication with age and health related behaviors contributing to it significantly, some students expressed disappointment in their experiences as a patient. Recommendations for medical providers on college campuses and implications for future research are discussed.

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CHAPTER 1: INTRODUCTION

College students fall into the period of adult development known as emerging adulthood. While this period is characterized by many as time of changes and transitions such moving out of parents' home, gaining independence, and taking on more responsibilities, it also includes transitions to the college environment, adding responsibilities for own health routine and changes in healthcare (Arnett, 2007; Berk, 2012). The current study investigates college students' experiences related to health attitudes and behaviors while enrolled at ECU campus and explores their satisfaction with communication from health care providers at student health services available through their college. Previous research (Kim & White, 2018) has shown that strong patient-provider communication is essential for meeting the health care needs for this demographic.

Emerging Adulthood

The theory of emerging adulthood, developed by Arnett (2007), conceptualizes early adult development from the end of adolescence through the mid-to-late 20's. Arnett's (2007) theory proposed that emerging adults have a distinctive developmental experience different from adolescents and young adults. The theory of emerging adulthood focuses on psychological and subjective experiences of this age group with particular emphasis on identity exploration, transitions, redefining relationship with parents, instability, self-focus, and possibilities (Tanner, & Arnett, 2009). Emerging adulthood is characterized by increasing levels of autonomy from parents including living independently and taking on more responsibilities (Eaton et al., 2017). Farre et al. (2015) described emerging adulthood as a developmental stage rather than a chronological age group. Tanner and Arnett (2009) stated that life events that occur during the

period of emerging adulthood are more likely to be integrated into the identity and memories of individuals than experiences during other life stages.

College Students as Emerging Adults

Today more emerging adults go to college than do not with about half of emerging adults enrolling in a four-year college after high school (Arnett, 2016). College students as emerging adults have not made the transitions traditionally associated with adult status, but they are much freer from parental control than adolescents (Arnett, 2007; Berk, 2012; Eaton et al., 2017). Within the emerging adulthood demographic, college students are more likely to come from higher socioeconomic backgrounds, and be female and White (Arnett, 2016).

While emerging adulthood is often considered a period of good health in most people's lives, research shows that health behaviors and habits that persist across adulthood often begin during this life stage (Calamidas & Crowell, 2018). Previous research (Kim & White, 2018) indicates that quality of medical provider communication is important for meeting emerging adults' medical and developmental needs. This study examines health related experiences and behaviors of college students and investigates perceptions of medical provider communication at the health center from college students at East Carolina University.

CHAPTER 2: REVIEW OF THE LITERATURE

The developmental tasks of emerging adulthood include becoming more independent, forming identity, building professional career, establishing romantic relationships and new friendships, and transitioning to college (Arnett, 2007; Berk, 2012). This transition also includes taking charge of individual health care needs, making decisions related to health associated behaviors, and establishing relationships with medical providers on their own (Arnett, 2007). The transition to college is described as a stressful event as some young people are away from home for the first time and may experience health problems due to stress of adaptation, unhealthy eating habits, disrupted sleep, peer pressure, and change of routine (Berk, 2012). This study explores college students' perceptions of medical providers' ability to meet their unique health care needs through the lenses of transitioning to the college environment and taking responsibilities for own health and well-being.

College Environment

Arnett (2016) described the college environment as one of the best environments for emerging adults. The college environment allows for emerging adults to explore new connections and friendships, build romantic relationships, invest in future careers, and evaluate others' worldviews without taking on the full responsibilities of adulthood (Arnett, 2016). While the college environment provides a greater opportunity for choice and exploration it also stimulates greater challenges with greater educational and social role requirements (Arnett, 2016). The change in support system and replacement of child- and family-oriented health services means that the emerging adult must rely more on his/her own resources in a less structured college environment, in addition to the new role as an independent student (Arnett 2016, Wood et al., 2018). College students who may lack maturity and personal communication

skills, have low personal and financial resources, or those with physical/mental health problems and/or intellectual disabilities may struggle during this period and experience a negative course during college years which may affect educational goals, vocation, relationships, and health status (Arnett, 2016; Wood et al., 2018).

Developmental Needs of Emerging Adults

Emerging adults have distinct developmental needs different from adolescents and adults (SAHM, 2017). In particular, young adult development is centered around the transition from childhood to adulthood, forming one's own identity, establishing independence, separating from parents, and creating one's own set of morals and values. Unique developmental needs of this population also include transitions from school to work, from living with parents to living independently, and from pediatric to adult health care systems (SAHM, 2017). While establishing identity and professional preparation that college offers, the typical milestones of adulthood are changing and are no longer consistently applicable to all emerging adults (SAHM, 2017). There is growing evidence that neurological development continues well into the third decade of life (Colver & Longwell, 2013; Farre et al., 2016; SAHM, 2017). Researchers view emerging adulthood as a "vulnerable developmental period in need of specific focus and attention" (SAHM, 2017, p. 758). Neurodevelopment during emerging adulthood is still sensitive to environmental conditions and experiences (D'Agostino, Penney, & Zebrack, 2011; Tanner & Arnett, 2009).

Health-related needs. While emerging adults are relatively healthy as compared to other age groups (Tanner, & Arnett, 2009), emerging adulthood is a unique period of development where there are variety of unmet healthcare needs and issues related to access to medical care (SAHM, 2017). Emerging adults have higher rates of mortality and unplanned

pregnancy, and lower access to healthcare than adolescents and older young adults (SAHM, 2017; Steinbeck, Towns, & Bennett, 2014). Other health issues facing current emerging adults include overweight and obesity, unintentional injury, substance abuse, psychiatric disorders, and sleep disorders (Steinbeck et al., 2014). According to the CDC (2018), half of all new cases on sexually transmitted diseases (STDs) are in young people ages 15 to 24 years old. In particular, rates of infection for chlamydia and gonorrhea are higher in the southeastern United States than in other regions of the country (CDC, 2018).

Health related behaviors. While emerging adulthood is often viewed as a time of optimal health and wellbeing, this particular life stage is important for the development of health promotion and disease prevention (Nelson, Story, Larson, Neumark-Sztainer, & Lytle, 2008). Emerging adulthood is a time in which individuals establish lasting health-behavior patterns that impact their wellness across the lifespan (Nelson et al., 2008). Health related behaviors are actions or attributes that contribute to or detract from physical, mental, or social wellbeing both immediately and long term (Hassen, & Kibret, 2016). Only 60% of adults ages 18 to 24 years report levels of physical activity that meet CDC guidelines (CDC, 2016). Important health related behaviors for college students as identified by Trockel, Barnes, and Egget (2000) include exercise, eating, sleep habits, social support, and number of hours worked. According to the American College Health Association in 2010 the top five health issues for college students were mental health, sleep, infectious disease, exercise, and the use/abuse of alcohol (Wycoff, 2010). Additionally, researchers (Rosen, Carrier, Miller, Rokkum, & Ruiz, 2016) have found that technology use and sleeping patterns are closely related issues for college students that can have deleterious effects on health. For improving health related behaviors in the college student population, researchers (Visser, & Hirsch, 2014) recommend that college students are taught to

view their health behaviors from a future minded perspective, keeping in mind the long-term effects their behaviors will have on their health. Similarly, increased awareness, understanding, and self-efficacy of health-related behaviors is important for establishing healthier habits during the college years (Kim, & Kim, 2018).

College student health centers. Many colleges and universities offer on-campus health services for their students in the form of a student health center. Typically, these health centers are staffed by licensed medical professionals and offer similar services that an off-campus primary or urgent care clinic would offer (Perrault, 2018). In a study of college health center utilization, Angelini, Sutherland, and Fantasia (2017) found that about 82% of female students had utilized their campus' student health center by their senior year of college. Other research (Perrault (2018) found that despite the convenience of an on-campus student health center, many students still seek medical care from off campus providers. In a study of students' perceptions of medical providers at their college student health center, Campbell, Auerbach, and Kiesler (2007) reported that students wanted to be well informed and have their preferences considered while interacting with the medical provider. Additionally, students felt relatively competent at managing their own health care needs (Campbell et al., 2007). When students desired level of involvement from provider matched with their actual experience, their satisfaction with the provider was increased (Campbell et al., 2007). Lemly, Lawlor, Scherer, Kelemen, and Weitzman (2014) found that few colleges' student health services were prepared to meet the health care needs of students with chronic medical conditions, and those that were able to meet those needs were typically small or private colleges.

Developmentally Appropriate Health Care

Developmentally appropriate healthcare is a term used to describe quality healthcare services that meet the biopsychosocial needs of adolescents and young adults (Farre et al., 2015). Developmentally appropriate healthcare does not have a consistently used definition in research currently (Farre et al., 2016). Farre et al. (2016) stated that in order for developmentally appropriate healthcare to exist for emerging adults that adolescents and young adults (AYA) needs to be recognized as a distinct group from younger children and older adults. Farre et al. (2015) also argued that due to the better understanding of neurodevelopment and social changes in emerging adulthood, one could argue that developmentally appropriate healthcare is just as important for emerging adults as it is for adolescents. D'Agostino et al. (2011) stated that for providers to give care in a developmentally appropriate fashion, they must have an appreciation of emerging adulthood and an understanding of the different domains on adolescent and early adult development.

Health care transition. In addition to transitioning from adolescence to adulthood, emerging adults also often undergo a medical transition from pediatric to adult services. Cut-off points for transitioning from pediatric to adult care are often based on numerical age rather than developmental milestones (Farre et al., 2016). Farre et al. (2015) posit that health providers should take into consideration all the transitions adolescents and young adults are experiencing at this point in their lives in addition to the healthcare transition, as well as the effects these transition areas may have on each other. Emerging adults may not be used to the patient-centered rather than family-centered care model often used in adult healthcare settings and as such may not be strong advocates for their own health care (Steinbeck et al., 2014). Despite the fact that many of students still use parental health insurance, health care-related developmental

tasks of the college student population include establishing independence in decision making and financial and assumed responsibility for individual health (Artnett, 2007). College students are not always prepared to discuss health concerns or adjustment problems such as disturbed sleep, peer pressure, etc. that may arise during adaptation to college (D'Agostino et al., 2011)

Eaton et al. (2017) described the concept of transition readiness which measures how prepared emerging adults are to self-manage their health care responsibilities and transfer from pediatric to adult providers. Researchers have found that emerging adults with chronic medical conditions are actually more transition ready than their healthy peers (Eaton et al., 2017). Eaton et al. (2017) recommend that regardless of a medical diagnosis, transition readiness should be promoted in primary care and educational settings. One such setting that would be able to reach emerging adults would be university student health centers.

Physician Communication with Emerging Adults

Young adults need communication from health care providers to reflect their unique needs at this time in their development, particularly keeping in mind that emerging adulthood is a critical period in establishing preventative measures for improved health outcomes later in life (Kim, & White, 2018). Stroud, Mainero, and Olson (2013) identified violence, unintended pregnancy, sexually transmitted infections, and substance use as the primary health risks for young adults. Additionally, obesity and overweight, mental health disorders, and other conditions that often onset in early adulthood need to be addressed early to prevent longer term health issues (Stroud et al., 2013). Daw, Margolis, and Wright (2017) found that most emerging adults' health related behavior becomes less healthy (i.e. less frequent physical activity, lower quality diet, increased stress, etc.) over time during the transition into adulthood. Understanding

this developmental stage and associated health related risks are important for medical providers as it sets a stage for further health, well-being, and adaptation for future transitions in life.

Providers' understanding of development. Many pediatric providers have limited knowledge on the biopsychosocial development of adolescents and young adults (McDonagh, Minnaar, Kelly, O'Connor, & Shaw, 2006). Medical providers in the United Kingdom currently describe developmentally appropriate healthcare for emerging adults in terms of goals and expectations for the future to work towards (Farre et al., 2016). Increased understanding in the development of emerging adults creates an opportunity for providers to develop and change healthcare services to better meet the developmental needs of young adults (Farre et al., 2016). Young adults engage with healthcare providers differently when those providers are kind and empathetic by developing a sense of emotional safety and trust between the patient and provider (Kim, & White, 2018). Having a positive relationship between patient and provider allows emerging adults to be more engaged in their communication with providers (Kim, & White, 2018).

Barriers to effective communication. Providers experience communication barriers often rooted in the occupational culture that views communicating with patients as a luxury (Kim, & White, 2018). An additional barrier for providers is the sensitive nature of many health care topics discussed with young adults (Kim, & White, 2018). Navigating the intricacies of maintaining privacy while also addressing behaviors that are negatively impacting a patient's health can be difficult for providers (Kim, & White, 2018). Many providers do not have protocols for or knowledge of how to handle potentially awkward or embarrassing situations (Kim, & White, 2018). Medical providers working with college students need to be prepared to address cognitive limitations of this age such as invincibility, risk taking behaviors, or

internalizing behavior that could lead to more serious conditions such as eating disorders, depression and suicide, overweight/obesity, and anabolic steroid use.

Communication interventions. While very little evidence exists to support specific interventions or approaches to meet the developmental healthcare needs of emerging adults (Steinbeck et al., 2014), researchers recommend that protocols should be developed to aid providers in handling sensitive health information (Kim, & White, 2018). Farre et al. (2016) recommend that healthcare encounters with emerging adults should begin with a developmental assessment which will inform service delivery for the provider. Additionally, researchers recommend that providers be flexible in treatment plans/options when working with emerging adults as their developmental needs will vary based on the individual (D'Agostino et al., 2011; Farre et al., 2015).

Researchers (Farre et al. (2015) found that providers should discuss several important health topics with emerging adults. These topics include how health goals fit into larger life goals, how lifestyle and occupational choices influence self-management, and appropriate health promotion and anticipatory guidance (Farre et al., 2015).

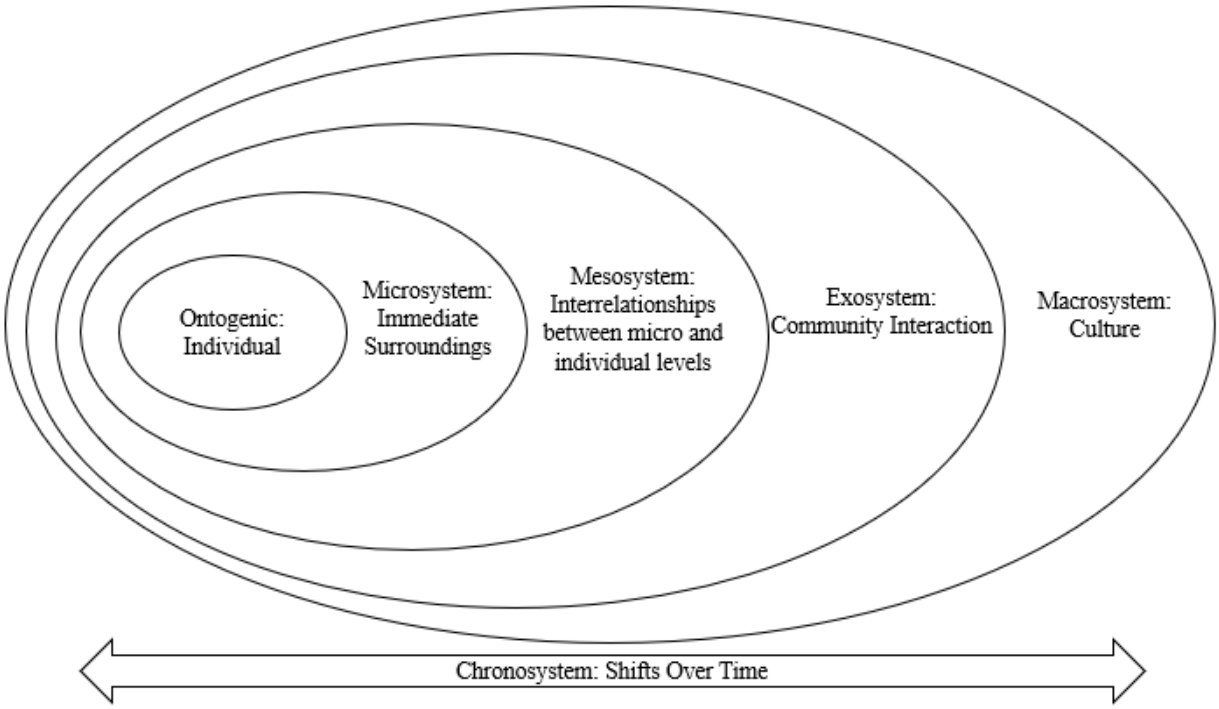
Steinbeck et al. (2014) support the development of adolescent and young adult medicine (AYAM) as a distinct medical specialty to focus on the unique developmental needs of this age group that are often overlooked by pediatric and adult providers who are trained to work with either younger or older people, respectively. The researchers compare the creation of an AYAM credential to that of gerontology, citing the specific developmental needs of adults in that age and stage of life (Steinbeck et al., 2014).

Theoretical Framework

The current study is guided by the ecological systems theory by Urie Bronfenbrenner (White, Klein, & Martin, 2015) and provides a strong theoretical and empirical base for health care services on college campuses suggesting a great importance of experiences with medical providers for college students. Based on this approach, development occurs in the interaction of individuals and groups within and across settings throughout the life course (White et al., 2015). The ecological theory is consistent with the notion that individual development is influenced by a variety of contextual factors including parental behaviors, relationships, and communication. Using an ecological systems lens (Bronfenbrenner, 1994) in concurrence with a broad range of individual factors influencing human development, medical providers fall within integrated systems (microsystem, mesosystem, and exosystem), where the individual is surrounded by the microsystem of immediate surroundings (i.e. family, peers, school). The college student health center is an example within the mesosystem in which the individual actively participates (Bronfenbrenner, 1994). Each individual's environment is comprised of layers that influence their development in different ways. Each of these layers of the ecological system is one degree removed from the individual. Within this ecological system, the mesosystem would include university, state, and national policies that affect college students' experiences with college transition and student health center experiences. Figure 1 shows a visual representation of Bronfenbrenner's theory.

Figure 1

Bronfenbrenner's Ecological Systems Theory



In addition to the ecological approach, Jeffrey Arnett's (2007) theory of emerging adulthood serves as a theoretical framework for understanding the unique developmental needs of emerging adults. Arnett (2007) identified the stage of development between adolescence and young adulthood as emerging adulthood. Arnett (2007) described this time as one that is on the way to adulthood, a road of independent exploration, unstable, and fluid. This unique stage in development of young individuals presents specific medical risks, health related, and developmental stressors. These developmental stressors include establishing autonomy from parents, developing a personal set of values and identity, forming strong relationships with peers/romantic partners, and pursuing educational and/or career goals in addition to establishing a core identity and financial independence (D'Agostino et al., 2011; Arnett, 2007).

The purpose of the study is to explore the students' health related experiences during college years and satisfaction with communication and perception of health care services provided on campus through student health services (ECU SHS). This study investigates the following research questions:

a. What health related behaviors are reported by college students at ECU?
b. What variables (i.e. demographic, health-related, other) contribute to or predict students' perceptions of medical providers at the student health center?
c. Do students report their unique developmental needs as emerging adults are being met by medical providers at the student health center?
d. Explore how many students report high quality of communication with medical provider at the college student health center.

CHAPTER 3: METHODS

A cross-sectional survey design was utilized, as the goal of the current study was to explore college enrolled emerging adults' experiences with medical providers at the student health center in light of developmental transition and health associated challenges for this developmental age. This study was approval by the Institutional Review Board at the researchers' institution. (See appendix A)

Participants

Eligible participants for this study were emerging adults between the ages of 18-29 years old (Arnett & Žukauskiene, 2014) enrolled as a student at East Carolina University who had been seen by a medical provider at least once at the Student Health Center. The student health center at East Carolina University employs physicians, nurse practitioners, and physician assistants to provide medical services to students enrolled at ECU. It is located on the main ECU campus providing easy access to seek medical services for ECU students.

Participant recruitment and data collection

Participants were recruited from undergraduate courses at East Carolina University in the Spring and Summer 2019 academic terms. They were informed that participation in the study is voluntary and confidential. A three-stage process (introductory/consent letter, the actual online survey, and reminders) was used to increase the participant response rate. The survey was administered via an online survey provider, Qualtrics, and the data were downloaded into a statistical package (IBM SPSS Statistics 24) which was used for data analysis. It took 5-7 minutes for each participant to complete the survey. Students were provided a link to the online survey on Qualtrics from their course instructor via school email as well as from the ECU College of Health and Human Performance Facebook page. The survey link was open for five

months. By clicking "I agree" students consented to participation and were taken to the first page of the survey.

Measures/Instrument

A survey tool was developed specifically for this project to collect data on college enrolled emerging adults' health related experiences with adjustment to college and perceptions of medical providers they have previously seen at ECU's student health center (ECU SHS). The survey included four subsections: (1) informed consent and eligibility criteria, (2) demographic information (such as age, gender, race, etc.), (3) health related behaviors and college experience, and (4) perceptions of medical provider(s) communication skills. Additional questions regarding students' prior experience(s) at ECU SHS were also included in the survey including open-ended questions/comments for students to freely respond to and assess experiences that may not be gauged in the previous survey questions.

Health related behaviors. College experience and health-related behaviors of college students was assessed by a set of statements related to students' lives while in college which was specifically developed for the current study. Questions related to typical day-to-day habits and potential health-related behaviors (such as sleeping, eating, and technology use) asked participants to rate each behavior on a 4-point Likert scale indicating the frequency of the behavior ranging from "not at all" to "to a great extent." Those behaviors included: Sleeping patterns (ex. Not enough sleep, disrupted sleep, inability to sleep); Eating/food choices (ex. Peer pressure to eat certain food, drinking alcohol, dieting); Studying routine (ex. Making time to study); Using electronics (ex. TV, video games, cell phone); Exercise/physical activity (ex. Working out regularly, not exercising at all); and Social life (ex. Parties, hanging out with friends). A high score on the scale is indicative of high use/risk of behavior that may affect the

participant's health. A higher score on this scale represents the higher frequency/level of using described behavior.

Communication with medical provider. The Communication Assessment Tool (Makoul, Krupat, & Chang, 2007) was used to measure participants' perceptions of health care provider communication consists of 15 item scale that measures participants' perception of communication with their medical provider. Participants used a 5-point Likert scale to indicate their perceived quality of communication with their provider. The original version of this scale uses the word 'doctor' to describe the provider, but for the purposes of this survey, this was modified to 'provider' to be inclusive of other types of midlevel providers who work at Student Health Services. Previous research using this scale found it has high reliability (Cronbach's alpha = 0.96) (Makoul et al., 2007). A higher score on this scale represents the higher degree of satisfaction with communication with the medical provider.

Data Analysis

Data was downloaded from Qualtrics into a SPSS file that was coded by Qualtrics and the researchers. IBM SPSS Statistics 24 was used to analyze data. Descriptive statistics were used to describe the demographic characteristics of the sample, standard deviations, and means for each scale. Pearson correlations between study variables were performed between measured variables to evaluate the associations. Multiple regression models were run to determine what demographic variables were able to predict provider communication scores. Due to low participation from male and racial/ethnic minority participants, some analyses were conducted as select cases for only female or only white participants. For all analyses $p < 0.05$ was used to show statistically significant difference between groups. Open-ended question responses were analyzed by the principle investigator and organized into themes for reporting.

CHAPTER 4: RESULTS

Descriptive Data of Participants

A total of 150 students from East Carolina University initiated the survey on Qualtrics. Of those 150 participants, 108 students met the eligibility criteria (18-29 years old, current student at ECU, and visited ECU SHS at least once) to participate in the research study. From the eligible pool of participants, 98 students answered questions on the survey. A denominator of *N*=98 is used throughout unless otherwise noted.

Current sample (*N*=98) consisted from primarily female (*n*=80, 81.6%) and White (*n*=69, 70.4%) college students. Eighteen participants (18.4%) were male. Other races/ethnicities reported include Black (*n*=20, 20.4%), Asian (*n*=6, 6.1%), Hispanic/Latino (*n*=8, 8.2%), and Native American (*n*=1, 1.0%). Six participants selected more than one race/ethnicity. Ages of participants ranged from 18 to 27 years (*M*=20.37, *SD*=1.84).

A large portion of participants (*n*=42, 42.9%) reported growing up in an urban community, followed by those reporting growing up in suburban (*n*=30, 30.6%) and rural communities (*n*=26, 26.5%). Students reported their year in school with the greatest number being Junior/3rd year (*n*=27, 27.6%), followed by Freshman/1st year (*n*=26, 26.5%), Senior/4th year (*n*=20, 20.4%), Sophomore/2nd year (*n*=15, 15.3%), and 5th or more (*n*=10, 10.2%). The majority of students (*n*=57, 58.2%) reported living in an off-campus apartment with other students.

College experience and Heath-Related Behaviors

In assessment of health-related behaviors, college students were asked to report how much particular behaviors affect their health on a Likert type scale from 1-4, with 1 representing

"not at all" and 4 representing "to a great extent." Mean scores for each health-related behavior are listed in table 1.

Table 1

Health-related behaviors' impact on health (*N*=98, except **N*=97)

			High impact of behavior on health (Score of 4)	
Health-related behavior	*M*	*SD*	*n*	%
Sleeping patterns	3.09	.83	35	35.7
Eating/food choices	2.91	.90	27	27.6
Studying routine	2.93	.80	23	23.5
Electronics use*	3.11	.85	37	38.1
Exercise/physical activity	2.73	.87	20	20.4
Social life	2.87	.87	25	25.5

A health-related behaviors score was calculated for each participant as a sum of each item on the scale the scores they gave for each behavior. Participant health-related behavior scores ranged from 9 to 24 with a mean of 17.68 (*SD*=2.82). Participants indicated electronics use (*M*=3.11, *SD*=.85) and sleeping patterns (*M*=3.09, *SD*=.83) as the most impactful behaviors on their health. Electronics use (*n*=37, 38.1%) and sleeping patterns (*n*=35, 35.7%) were also the behaviors with the largest number of participants scoring that behavior as having the highest impact on their health. Reliability for this scale score was $\alpha = .54$.

Additionally, means for each health-related behavior item were compared by participant gender and race/ethnicity, as seen in table 2 and 3. An independent samples *t*-test was conducted

to compare students' mean health related behavior scores. There was statistically significant difference (t (96) =2.17, p=.03, two tailed) in mean score for eating/food choices between female (M=3.00, SD=.83) and male participants (M=2.50, SD=1.10). Female participants reported a greater impact of eating/food choices on their health while experiencing peer pressure to eat certain food, drinking alcohol, dieting. There was statistically significant difference (t (96) =2.09, p=.04, two tailed) in mean score for electronics use between white (M=2.98, SD=.83) and nonwhite participants (M=3.35, SD=.85). Nonwhite participants reported a higher impact of electronics use on their health than white participants.

Table 2

Health related behaviors scores by gender

	Female (n=80)		Male (n=18)	
Health-related behavior	*M*	*SD*	*M*	*SD*
Sleeping patterns	3.15	.80	2.83	.99
Eating/food choices*	3.00	.83	2.50	1.10
Studying routine	3.00	.76	2.61	.92
Electronics use	3.11	.85	3.11	.90
Exercise/physical activity	2.78	.84	2.56	.98
Social life	2.80	.85	3.17	.92

Note. *T-test analysis found means to be significantly different ($p < .05$)

Table 3

Health related behaviors scores by race/ethnicity

	White/Caucasian (*n*=64)		Non-White or More than One Race/Ethnicity (*n*=34)	
Health-related behavior	*M*	*SD*	*M*	*SD*
Sleeping patterns	3.16	.88	2.97	.76
Eating/food choices	2.97	.82	2.79	1.04
Studying routine	2.97	.78	2.85	.86
Electronics use*	2.98	.83	3.35	.85
Exercise/physical activity	2.78	.83	2.65	.95
Social life	2.86	.83	2.88	.95

Note. *T-test analysis found means to be significantly different ($p < .05$)

The last question on student health related experiences gauged whether or not medical providers are aware of those health-related and developmentally associated experiences while visiting SHS and assessing health outcomes. When asked whether they felt the providers at SHS appropriately addressed these health behaviors during their appointment, more than half (*n*=53, 54.1%) answered positively (yes). For students (*n*=45, 45.9%) who answered "no", they were given the opportunity to provide comments (freely respond) with suggestions of what the provider could have done to better address these behaviors. In their free response answers, many participants (*n*=15, 15.3%) noted that their provider did not even ask them about the health-related behaviors. A few students (*n*=3, 3.1%) noted that they believe providers should be concerned with students' overall wellbeing, including stressors in school and college life and mental health concerns.

Experiences at Student Health Services

Participants reported on experiences with student health services at their most recent visit as well as previous visits, if applicable. About one third of students (*n*=29, 34.1%) reported they have only been to SHS one time, while more students (*n*=34, 40.0%) reported going to SHS about once a semester. For the primary reason for their last visit to SHS the most common responses included acute illness (*n*=37, 43.5%) and women's/reproductive health (*n*=16, 18.8%). The majority of participants (*n*=79, 92.9%) reported themselves as not having a chronic medical condition that requires regular visits to a health care provider.

Insurance status and medical visits. All (*N*=83) participants reported having health insurance with most (*n*=72, 86.7%) having health insurance from outside of school. About one third of students (*n*=29, 34.5) stated they have a primary source of health care other than SHS while attending ECU. In free response, many students indicated that they considered a family physician in their hometown as their primary source for health care needs rather than SHS. A few participants indicated their main source of health care is to go to urgent care. Participants reported being seen by a variety of provider types at their most recent visit to SHS including doctor (*n*=19, 22.6%), nurse practitioner (*n*=21, 25.0%), physician assistant (*n*=10, 11.9%), or that they did not remember what type they had seen (*n*=34, 40.5%).

Medical Provider Communication

The Communication Assessment Tool (Makoul et al., 2007) was used to measure participants' perceptions of health care provider communication. Participants rated their satisfaction with medical provider communication by completing a 15-item scale, indicating their satisfaction on 5-point Likert type scale at their last visit to SHS. A high score represents high

satisfaction with communication from medical provider in SHS. In the current study, this scale had a high Cronbach alpha reliability (α=0.97) coefficient.

Total scores for entire sample (*N*=83) ranged from 15 to 75, with a higher score indicating greater satisfaction with provider communication. Participants' total scores for provider communication satisfaction were divided into three groups indicating Low Satisfaction (15-34), Medium Satisfaction (35-54), and High Satisfaction (55-75) score for medical provider. The mean score was 60.4 (*SD*=13.44), and the majority of participants (*n*=62, 74.7%) rated their provider's communication as High, followed by Medium (*n*=17, 20.5%) and Low (*n*=4, 4.8%) satisfaction.

For the current study, the fifteenth question on the scale was changed to ask how well the provider checked in with the student about their adjustment to the college environment. Nearly one-third of participants (*n*=24, 28.3%) gave their provider a low score on this question.

T-test. Participants were asked whether they felt their provider at student health services appropriately addressed health related behaviors (i.e. sleeping patterns, social life, electronics use, etc.) during their visit. An independent samples t-test was conducted to compare students' mean provider communication scores for this question regarding whether students felt the provider appropriately addressed health-related behaviors during their visit to SHS. There was statistically significant difference (t (81) =2.61, p=.011, two tailed) in ratings for those who answered "Yes" to this question (*M*=63.47, *SD*=11.87) and those who answered "No" (*M*=55.91, *SD*=14.46). Participants who indicated that their provider did not appropriately address health related behaviors during their visit to student health services gave significantly lower provider communication satisfaction scores.

Correlational analysis. A Pearson correlation was conducted comparing health-related behavior scores with provider communication scores. A correlation coefficient alpha of .212 was found to be approaching statistical significance (p=.056), indicating that students with high health related behavior scores also reported high satisfaction with medical provider.

Multiple regression. Regression analyses to predict satisfaction with medical provider for the entire sample did not produce significant results. A multiple regression was conducted to investigate what set of demographic variables (age and race/ethnicity) and health-related behaviors variables are able to predict satisfaction with provider communication for female participants (N=66). The results of the regression indicated that the model explained 11.4% of the variance and that the model was approaching significance as a predictor of provider communication score, F (3,62) = 2.66, p =.056. Health related behavior score was the greatest significant contributor to the model (B=.261, p=.033).

A multiple regression was conducted to investigate whether age, gender, and health-related behaviors score could predict provider communication scores for White participants (N=52). The results of the regression indicated that the model explained 20.6% of the variance and that the model was significant as a predictor of provider communication score, F (3, 48) = 4.14, p = .011. Health related behaviors (B=.31, p=.023) and age (B=.28, p=.04) were significant contributors to the model.

Table 4

Summary of Regression Analysis for Variables Predicting Provider Communication Scores

	Female Participants (*n*=66)			White participants (*n*=52)		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Age	.336	.863	.047	2.330	1.104	.275*
Health-related behavior	1.327	.609	.261*	1.426	.606	.310*
Race/Ethnicity	6.403	3.545	.216			
Gender				-7.852	5.390	-.193
R Squared	.114			.206		
F	2.657			4.142*		

Note. *$p<.05$

Open Ended Responses

Participants were given the opportunity to respond to open ended questions about positive and negative experiences at ECU SHS. For positive experiences, several themes emerged highlighting aspects that students appreciated from their experiences. The most common theme was complimenting the staff and providers at ECU SHS as *kind*, *nice*, or *friendly* (*n*=12, 12.2%). Additionally, many (*n*=9, 9.2%) respondents indicated that they felt they were cared for during their appointment. Some (*n*=6, 6.1%) students commented that they were able to get through their appointment quickly. Other words in description of participants' experiences included respectful, comforting, helpful, and informative.

For negative experiences at ECU SHS, the most common theme that emerged was students feeling they had not been given the right diagnosis for their illness (*n*=6, 6.1%). Additionally, a few participants (*n*=4, 4.1%) commented that they felt their need for coming to

ECU SHS was not meet during their appointment. Some participants cited long wait times (*n*=2, 2.0%) or difficulty in scheduling an appointment (*n*=2, 2.0%). Participants (*n*=3, 3.1%) also reported high cost of services, especially for those who have an insurance plan not considered in-network at ECU SHS.

CHAPTER 5: DISCUSSION

The current study investigated college students' experiences at the ECU student health center with the focus on health-related behaviors while in college as emerging adults and explored communication with medical providers during their visit(s) to the student health center. Emerging adulthood is an important period for the development of health-related behaviors that can last a lifetime. Effective communication with a medical provider can impact health for emerging adults both in their current life stage and later in life.

The current study's sample was predominately female and White which is typical for a college setting (Arnett, 2016). Our sample was representative of approximately 0.34% of East Carolina University's 2018-2019 school year enrollment (ECU, 2018). ECU's 2018-2019 student body was reported as 66.6% White and 58.9% female students, making the current study's sample somewhat over representative of female students. Students were primarily recruited from the College of Health and Human Performance which is known to be comprised mostly of female students (Valois, Kotecki, & Prividera, 2014).

College life and heath related behaviors

ECU college students reported on health-related behaviors which potentially contribute to overall health and wellbeing at this developmental stage. Thus, participants reported how much each of six health related behaviors (sleeping patterns, eating pressure, social life, etc.) impacted their health. Participants reported electronics use as the highest mean score and the largest number of participants indicating that this behavior had a high impact on their health. Previous research addressing major health concerns for college students do not typically include electronics use. Increased presence of technology both in and out of the classroom on college campuses may be taking a toll on students' mental and physical health as indicated by these

results. In addition to electronics use, sleeping patterns was the second highest rated health related behavior. These two behaviors being rated most highly are particularly interesting in light of Rosen et al.'s (2016) study indicating that technology use and sleep deprivation were linked behaviors for college students.

When comparing the impact of health-related behaviors between genders, female participants gave higher scores than males for each of the behaviors with the exception of social life. Additionally, scores for eating/food choices (i. e. peer pressure to eat certain food, drinking alcohol, and dieting) were found to be significantly higher in females than in males.
Peer pressure to diet among females has been discussed widely on college campuses, as this behavior is associated with eating disorders (Sira, & White, 2010). Emerging adulthood is often associated with diet changes and weight gain (Winpenny et al., 2018).

White participants reported higher health related behavior impacts for all behaviors except electronics use and social life. While Nonwhite participants reported significantly higher impacts of electronics use on their health than White participants. Additional research should be conducted to further investigate health behaviors during the college years to understand differences between genders and racial/ethnic groups.

Quality of Provider Communication

The majority of study participants rated the quality of provider communication at student health services as high. Interestingly, health related behavior score was found to be correlated and predictive of provider communication satisfaction score. Students who reported that their behaviors had a higher impact on their health were more likely to rate communication with their provider highly as well. Participants who are more aware of how their behavior impacts health may be more likely to communicate their needs with their provider leading to an overall better

experience for the patient. Similarly, Kim and White (2018) found that high quality communication from the provider leads to greater reciprocation in communication from young adults. Participants in the current study who felt that their medical provider did not address health related behaviors during their appointment gave their provider a significantly lower communication satisfaction score than those who felt the provider addressed health related behaviors. Students who perceive that their provider did address the important behaviors that impact their day-to-day lives as emerging adults are also critical of the quality of communication from the provider. Addressing health related behaviors during an appointment may improve how communication quality is perceived as well.

Students' perceptions of provider communication

The current study found that for White participants, age was a significant factor in the provider communication satisfaction score reported. Higher provider communication satisfaction for older participants may be due to the increased autonomy and responsibility of older emerging adults who are taking a more active role in managing their own health care needs (Eaton et al., 2017). Research (Johnson, Roter, Powe, & Cooper, 2004) also shows that the quality of patient-provider communication differs depending on the patient's race. Johnson et al. (2004) found that medical providers are less dominant and more focused on patient-centered communication with White patients. The current study did not find gender and race/ethnicity to significantly contribute to differences in provider communication scores which may be due to limitations in the sample.

Providers' ability to meet developmental needs of emerging adults

While the majority of participants reported high provider communication satisfaction scores, a number of participants indicated low provider communication or dissatisfaction with

providers on other survey or open-ended questions. Considering that a significant developmental milestone for emerging adults is the transition to college (Arnett, 2016), it is interesting to note that one-third of participants rated communication with medical provider as low on the scale item asking whether the provider checked in on how they were adjusting to the college environment. Additionally, as a part of mesosystem in the ecological approach (Bronfenbrenner, 1994) medical providers play an important role in guiding their patients' health related behaviors. Nearly half of students indicated that they did not feel their provider adequately addressed these health-related behaviors during their appointment at student health services. These findings may be due to college students' lack of preparedness in discussing health concerns or adjustment issues (D'Agostino et al., 2011) which could also indicate that younger college student have not yet developed skills in advocating or communicating their health-related concerns. While medical providers on college campuses should be cognizant of these as common concerns for the population they serve, they may mistakenly be waiting for students to bring up these topics themselves.

Limitations

The current study must be viewed in a light of some limitations that impact its application outside the scope of the research questions. While college students are most like to be White and female (Arnett, 2016), the current study's sample was disproportionately so, and did not fully represent the racial, ethnic, and gender diversity present on East Carolina University's campus. The use of an online survey allowed time to pass from when participants were actually seen by a medical provider at the student health center to when they were asked questions about their experiences with provider communication. A relatively small sample size and the cross-sectional design of the study also contribute to the limitations of the study. Future researchers could

administer the provider communication assessment tool immediately or shortly after an appointment for more accurate reflections of participants' perceptions.

Practical Implications for Medical Providers on College Campuses

While students rated their satisfaction with provider communication highly, many students mentioned that their provider did not discuss any of the health-related behaviors in the survey with them. In free response many students suggested that providers at student health services should be discussing these behaviors with them to monitor their overall health and adjustment to the college environment. Additionally, discussion between providers and students on health goals and behaviors that support those goals can help set up students for an overall healthier lifestyle, so information sharing on proper diet, adequate sleep, exercise and activity, in addition to influence of technology in lives of college students should be initiated by health professionals. Student health centers could address this need by offering a screening tool on health-related behaviors and adjustment to the college environment as part of the check in process for non-urgent/emergency appointments. Medical providers could address concerns brought up on the screening tool during the student's appointment. More research is needed to better understand the potential role of student health centers and colleges/universities in the development of health-related behavior and transitioning from adolescence to emerging adulthood for students.

Keeping in mind that students are often newly independent from their parents in regard to making their own decisions (Arnett, 2007), it is important for medical providers to enable and facilitate discussion with students to empower them for decision making in this new life stage. Additionally, colleges and universities should be mindful of how policies and availability of resources influence the wellbeing and development of their students from an ecological systems

perspective (Bronfenbrenner, 1994). It is important for college student health center providers to be aware of the health care transition students undergo when entering college. These providers can help students to gain more agency and understanding over their own health care needs as many students are taking on these responsibilities for themselves for the first time. Additionally, student health providers can advocate for the creation of an Adolescent and Young Adult Medicine credential for providers in pediatrics, family medicine, and internal medicine as was suggested by Steinbeck et al. (2014) to meet the specific developmental needs of patients in this age group.

Conclusions

The current study shows that students were satisfied with communication from the health care provider, however, participants mentioned that developmental challenges associated with emerging adulthood and related to health outcomes were not discussed during their visit. College student health centers and medical providers working with emerging adults should consider interventions to address these gaps, including gathering additional information from students related to studying routine, technology, sleeping, and eating. Age plays a significant role in the transition from adolescence to college as well as the results in this study, highlighting the importance of interventions reaching first year/freshmen students who may require more support and attention than older students.

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APPENDIX A: IRB APPROVAL

I B: Study Correspondence Letter

umcirb@ecu.edu
Sat 12/29/2018 10:58 AM
To: Shaw, Anne K <shawan17@students.ecu.edu>

EAST CA OLINA UNIVE SITY
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Notification of Exempt Certification

From:	Social/Behavioral IRB
To:	Anne Shaw
CC:	Natalia Sira
Date:	12/29/2018
Re:	UMCIRB 18-002978 College students and health care services: Exploration of students' experiences and satisfaction with medical provider communication

I am pleased to inform you that your research submission has been certified as exempt on 12/21/2018. This study is eligible for Exempt Certification under category #2.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418

APPENDIX B: SURVEY OUTLINE

Eligibility Criteria

1. Are you currently enrolled as a student at East Carolina University?
    a. Yes
    b. No (if no, not eligible)

2. Are you between 18 and 29 years old?
    a. Yes
    b. No (if no, not eligible)

3. Have you ever been seen by a medical provider at ECU Student Health Services?
    a. Yes
    b. No (if no, not eligible)

Demographics

The following section of the survey asks questions about your personal characteristics.

1. What is your age? Select one 18-29

2. What is your gender?
    a. Man
    b. Woman
    c. Non-binary
    d. Prefer not to answer

3. What is your race/ethnicity? Check all that apply.
    - White/Caucasian
    - Black/African American
    - Asian
    - Hispanic/Latino
    - Native American
    - Other, please specify _____

4. What type of community did you grow up in?
    a. Urban (<100,00 people, i.e. Raleigh, Charlotte, Fayetteville)
    b. Suburban (10,000-100,000 people, i.e. Greenville, Asheville, Wilson)
    c. Rural (Less than 10,000 people, i.e. Washington, Clinton, Edenton)

5. What is your current year in school?
    a. Freshman/First year
    b. Sophomore/Second year
    c. Junior/Third year
    d. Senior/Fourth year
    e. Fifth or more year

6. Where do you live while you are in school at ECU?
    a. On campus, in a dormitory/residence hall
    b. Off campus, in an apartment or house with other students
    c. Off campus, with my family
    d. Other, please describe _____

On a 4-point scale, please tell us how much do each of the following activities affect your health while you are in school at ECU.

1	2	3	4
Not at all	Very Little	Somewhat	To a great extent

1. Sleeping patterns (ex. Not enough sleep, disrupted sleep, inability to sleep)
2. Eating/food choices (ex. Peer pressure to eat certain food, drinking alcohol, dieting)
3. Studying routine (ex. Making time to study, disruption in study times, taking Adderall to study)
4. Electronics use (ex. TV, video games, cell phone)
5. Exercise/physical activity (ex. Working out regularly, not exercising at all)
6. Social life (ex. Parties, hanging out with friends)

At your most recent visit to ECU Student Health services, did you feel that your provider appropriately addressed the activities in the previous question (sleep, eating/food, studying, electronics, exercise, social life)?

- Yes
- No (If no, next question)

What could the provider as Student Health Services have done differently to better address the activities from the previous question?
[open ended]

<u>Questions on College Experiences</u>
The following section includes statements about your personal experiences. Using a 5-point scale, tell us where you identify with each statement.

1	2	3	4	5
Never	Rarely	Sometimes	Most of the time	Always

1. I feel in control of my choices and actions.
2. I am able to do the things I need to do to take care of myself
3. I am confident in who I am as a person
4. I feel pressure from my friends and peers to take risks with drugs and/or alcohol
5. If I am sexually active, I use protection against sexually transmitted infections and pregnancy when I have sex
6. I have a good relationship with my roommate/housemate(s)

7. I am comfortable discussing difficult topics such as sex, weight, or alcohol/drug use with medical providers

If you would like to elaborate more on any of the above experiences, please use the space below to do so: [open ended]

Questions on ECU SHS

The following section of the survey asks you to share about your visit(s) to Student Health Services (SHS) you have had as a student at East Carolina University.

1. How often do you typically go to SHS?
    a. Twice a month or more
    b. About once a month
    c. About once a semester
    d. About once an academic year
    e. I have only been to SHS one time

2. Which of the following was your primary reason for your **most recent** visit to SHS?
    - Acute illness (cold, flu, sinus infection, etc.)
    - Injury (sprain, strain, fracture, etc.)
    - Annual physical (sports, employment, etc.)
    - Immunizations
    - Prescription refill
    - Women's/reproductive health
    - Mental health (depression, anxiety, etc.)
    - Other (please describe)

3. Which of the following are reasons you have ever visited SHS in the past? Check all that apply.
    - Acute illness (cold, flu, sinus infection, etc.)
    - Injury (sprain, strain, fracture, etc.)
    - Annual physical (sports, employment, etc.)
    - Immunizations
    - Prescription refill
    - Women's/reproductive health
    - Mental health (depression, anxiety, etc.)
    - Other (please describe)
    - I have only been to SHS one time

4. Do you have a chronic medical condition that requires regular visits to a medical provider?
    a. Yes (open response text box)
    b. No
    c. Prefer not to answer

5. Which of the following statements best describes your current health insurance enrollment status?
    a. I have the student health insurance plan offered by ECU
    b. I have health insurance from another source such as employment, family, marketplace, etc.
    c. I do not currently have health insurance

6. Do you consider the ECU SHS to be your main source of health care while in school at ECU? If No, please describe your main source of health care while in school at ECU.
    a. Yes
    b. No [open ended]

7. At your most recent visit to ECU SHS what type of provider(s) did you see?
    a. Doctor
    b. Nurse practitioner
    c. Physician assistant
    d. Don't know/don't remember

Provider communication (Modified from Makoul et al., 2007)

Communication with patients is a very important part of quality medical care. We would like to know how you feel about the way your provider communicated with you. Your answers are completely confidential, so please be as open and honest as you can.

1	2	3	4	5
poor	fair	good	very good	excellent

Please use this scale to rate the way the doctor communicated with you. Circle your answer for each item below.

The doctor	poor				excellent
1. Greeted me in a way that made me feel comfortable	1	2	3	4	5
2. Treated me with respect	1	2	3	4	5
3. Showed interest in my ideas about my health	1	2	3	4	5
4. Understood my main health concerns	1	2	3	4	5
5. Paid attention to me (looked at me, listened carefully)	1	2	3	4	5
6. Let me talk without interruptions	1	2	3	4	5
7. Gave me as much information as I wanted	1	2	3	4	5
8. Talked in terms I could understand	1	2	3	4	5
9. Checked to be sure I understood everything	1	2	3	4	5
10. Encouraged me to ask questions	1	2	3	4	5
11. Involved me in decisions as much as I wanted	1	2	3	4	5
12. Discussed next steps, including any follow-up plans	1	2	3	4	5
13. Showed care and concern	1	2	3	4	5
14. Spent the right amount of time with me	1	2	3	4	5
15. Checked in with how I am adjusting to the college environment	1	2	3	4	5

You're almost done: This is the last section of the survey!

Your experiences and opinions are valuable, so we have left space for you to tell us about them below

1. Do you have any comments regarding a **positive** experience(s) at ECU SHS? [open ended]

2. Do you have any comments regarding a **negative** experience(s) at ECU SHS? [open ended]

3. Do you feel that the medical providers at ECU SHS meet your needs as a young adult college student? Please share any details with us you would like. [open ended]

4. Is there anything else you would like us to know about your experience(s) at ECU SHS that we did not ask about? [open ended]